

## RAMAN ASSISTED EDFA SYSTEM AND METHOD

## CROSS REFERENCE TO RELATED APPLICATIONS

5 [0001] The present application claims the benefit of  
U.S. Provisional Appl. Ser. No. 60/249,346 filed  
November 16, 2000, entitled "Amplifier Design for Raman  
Assisted EDFA Systems," the teachings of which are  
herein incorporated by reference, and the present  
application herein incorporates by reference the  
10 teachings of commonly assigned U.S. Provisional Appl.  
Ser. No. 60/249,347, also filed November 16, 2000,  
entitled "Terrestrial System Design," and its related  
U.S. Patent Appl. Ser. No. X,XXX,XXX, being filed  
concurrently with the present patent application. 09/991,154

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## FIELD OF THE INVENTION

[0002] The present invention relates to optical  
telecommunications systems. More particularly, the  
present invention relates to Raman assisted EDFA  
20 amplification in long haul and ultra-long haul optical  
telecommunications systems.

## BACKGROUND OF THE INVENTION

[0003] The maximum distances optical signals can  
25 travel through optical fiber before degrading to the  
point of being undetectable by a receiver is limited  
by, among other things, power loss or attenuation  
caused by dispersion, scattering, absorption and  
bending. Optical amplifiers are employed to reduce or  
30 minimize power loss, especially in long haul systems,  
i.e., about 200 to 600 km, and ultra-long haul (ULH)  
systems, i.e., greater than about 2,000 km.

[0004] Transmission systems may include a series of  
optical amplifiers periodically spaced along the fiber

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